

INTEGRATED CHARGE AND VOLTAGE MODE DRIVE CIRCUIT FOR PIEZO ACTUATORS USED IN MASS DATA STORAGE DEVICES, OR THE LIKE

Abstract of Disclosure

A driver (40) for supplying drive signals to a piezo element (48) of a milli-actuator device (21) in a mass data storage device (10) in a charge mode of operation has a first circuit (96,98) for providing a charging current to a sense capacitor (58) in response to head position control signals. The first circuit is powered by a voltage supply (VM) that is referenced to a substrate potential, or a ground potential (AGND). A second circuit (104,106) for mirroring a current in the first circuit at a predetermined mirror ratio (1x:Nx) to provide drive currents to the piezo element (48). The substrate potential may be, for example, an analog ground potential. If desired, the integrated circuit may also include a first switch (60) connected to selectively disable the first circuit (96,98) a second switch (62) connected to selectively provide a feedback path from the second circuit (104,106) to an input of the second circuit (104,106). When the first (60) and second (62) switches are selectively operated, the integrated circuit is configured to operate in a voltage mode.

Figures